

REMARKS

Claims 1-73 are all the claims presently pending in the application. By this Amendment, claims 1, 12, 20, 31, and 39 are amended. The amendments introduce no new matter.

It is noted that the claim amendments, if any, are made only to assure grammatical and idiomatic English and improved form under United States practice, and are not made to distinguish the invention over the prior art or narrow the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-2, 5, 7-13, 16-17, 20-21, 24, 26-28, 30-32, 35-36, 38-40, 43, 45-50, 53, and 55-73 stand rejected under 35 U.S.C. §103(a) over Gallagher, et al. (US 2004/00192211), in view of Desgagne (US 6,047,191), and further in view of Sekiyama (US 2002/0065604). Claims 3-4, 6, 14-15, 18-19, 22-23, 25, 29, 33-34, 37, 41-42, 44, 51-52, and 54 stand rejected under 35 U.S.C. §103(a) over Gallagher in view of Desgagne and Sekiyama, and further in view of well known prior art (MPEP 2144.03).

This rejection is respectfully traversed in the following discussion.

THE CLAIMED INVENTION

The claimed invention, as exemplarily defined in claim 1, is directed to a method of collecting information used for adjustments with an information collecting server in a radio communication system connected to at least one mobile radio terminal for performing user communications.

The method includes the mobile radio terminal monitoring a communication status of user communication, detecting as a trigger a change in such communication status, acquiring a reception status of a radio signal, acquiring a coordinate position of the mobile radio terminal, and sending measured information including said reception status and said coordinate position to said information collecting server.

The communication status of user communication is detected as a trigger when a change of the communication status has satisfied a predetermined condition;

The reception status of a radio signal is acquired when the trigger is detected.

The method further includes the information collecting server recording said measured information received from said mobile radio terminal.

Conventionally, collecting reception status information has been a task of the general mobile radio terminal owned by a user used to measure reception status information, and the measured reception status information is collected from the mobile radio terminal.

(Application at p. 3, lines 1-7.)

The present invention, on the other hand, provides monitoring a communication status of user communication and detecting as a trigger when a change of said communication status has satisfied a predetermined condition, and acquiring a coordinate position of said mobile radio terminal, and sending measured information to an information collecting server that includes said reception status and said coordinate position to said information collecting server. This feature of the claimed invention is important to identify the various causes of changes in the communication status by triggering collection of reception status and accurate coordinate positional information on the basis of a predetermined trigger of a communication status, and not merely a reception status.

THE PRIOR ART REJECTIONS

The Gallagher Reference

Claims 1-2, 5, 7-13, 16-17, 20-21, 24, 26-28, 30-32, 35-36, 38-40, 43, 45-50, 53, and 55-73 stand rejected under 35 U.S.C. §103(a) over Gallagher in view of Desgagne and further in view of Sekiyama. Claims 3-4, 6, 14-15, 18-19, 22-23, 25, 29, 33-34, 37, 41-42, 44, 51-52, and 54 stand rejected under 35 U.S.C. §103(a) over Gallagher in view of Desgagne and Sekiyama, and further in view of well known prior art. Applicant respectfully traverses these rejections.

The Examiner alleges that Gallagher discloses certain features of the claimed invention. Applicant submits, however, that there are features of the claimed invention which are neither disclosed nor suggested by Gallagher.

With regard to independent claims 8, 27, 46, and 49, the Examiner alleges the claims recite similar features to those recited in claim 1.

However, claim 8 recites “A method of collecting information used for adjustments with an information collecting server in a radio communication system connected to at least one mobile radio terminal for performing user communication, comprising: in said information collecting server, sending trigger information serving as a measuring trigger simultaneously to the at least one mobile radio terminal; in said mobile radio terminal, when said trigger information is received, acquiring a reception status of a radio signal; acquiring a coordinate position of said mobile radio terminal; and sending measured information including said reception status and said coordinate position to said information collecting server; and in said information collecting server, recording said measured information

received from said mobile radio terminal.” Claims 27, 46, and 49 disclose a similar feature of a triggering signal being sent from the information collecting server.

Claim 1 does not recite such a feature. The Examiner does not allege that such a feature is disclosed or suggested in any reference. Further, none of the references disclose or suggest such a feature. Thus, the Examiner has failed to meet his burden of a *prima facie* rejection of independent claims 8, 27, 46, and 49.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claims 8, 27, 46, and 49, and of all claims dependent therefrom.

With regard to independent claim 1, Gallagher fails to disclose or suggest at least “A method of collecting information used for adjustments with an information collecting server in a radio communication system connected to at least one mobile radio terminal for performing user communications, comprising: in said mobile radio terminal, monitoring a communication status of user communication and detecting as a trigger when a change of said communication status has satisfied a predetermined condition; acquiring a reception status of a radio signal when said trigger is detected; acquiring a coordinate position of said mobile radio terminal; and sending measured information including said reception status and said coordinate position to said information collecting server; and in said information collecting server, recording said measured information received from said mobile radio terminal,” as recited in the claim. Independent claims 12, 20, 31, and 39 recite similar features. The rejection of independent claims 12, 20, 31, and 39 is traversed on substantially similar bases.

The Examiner alleges that Gallagher discloses detecting as a trigger when a change of said communication status has satisfied a predetermined condition. “(par. 57, “handover”,

note that a cellular terminal continuously receives beacon signals transmitted from a base station. The beacon signal is received from multiple base stations in the area. A trigger for handover happens when the beacon signal from the present base station becomes weaker relevant to the beacon signal from a neighbor base station), when said communication status has satisfied a predetermined condition (par. 57, 65 and 71, “when the subscriber devices 12 cross boundary”, note that there could be multiple predetermined conditions for handover, e.g., weaker signal strength, call traffic ...etc.).” Office Action, pp. 2-3.

However, the cited reference fails to disclose or suggest wherein a change of communication status is detected as a trigger.

Instead, Gallagher discloses only comparing relative signal strengths of beacons, regardless of a user’s communication status. “*The location tracking module 122 continues to monitor the signal strength from the base station 18. When the signal strength reaches a threshold corresponding to the crossing of boundary B4, the handover module 126 may be used to generate a handover signal that is applied to the audio switch 108.*”

Gallagher, para. [0057]. The mobile radio unit of Gallagher may be engaged in communication continually without any change of communication status, or may be engaged in no communication at all. The relative signal strengths cannot correspond to a change of communication status. Further, Gallagher para. [0065] and [0071] disclose a similar feature of handover according to relative signal strength of the base station signals, regardless of user communication status.

Instead, the invention of Gallagher is specifically to prevent such a change of communication status (i.e., to provide “seamless” continuing communications). Gallagher specifies that, “*Ideally, such a system would allow an individual, through seamless handovers*

between the two systems, to exploit the benefits of each system.” Gallagher, para. [0006].

In sharp contrast, the present Application recites various examples of a change of communication status which can comprise such a trigger, such as “an occurrence of a forced disconnection” (Claim 2), “an occurrence of a handover failure” (Claim 3), “a lowering of a throughput of a user communication below a predetermined threshold value” (Claim 4), and “a call which is made” (Claim 5). All of the examples in the dependent claims involve a change in a communication status of a user communication.

The Examiner’s suggested “communication status” examples (*“when the subscriber devices 12 cross boundary”, note that there could be multiple predetermined conditions for handover, e.g., weaker signal strength, call traffic ...etc.)*) do not in fact disclose changes in a user communication status. Instead, they all comprise characteristics of reception status.

The Examiner further alleges that Gallagher discloses acquiring a coordinate position of the mobile radio terminal at Fig. 2 and para. [0038]. *“Module 106 contains a location tracking module 122 that records the current location.”* Office Action, p. 3.

However, the cited passage fails to disclose or suggest acquiring a coordinate position, as recited in the claims. Instead, Gallagher para. [0038] discloses only, *“The memory module 106 contains a location tracking module 122 that records the current location of the device 12 (i.e., whether the device is within an unlicensed coverage area 16). In addition, the module 106 contains an authentication module to coordinate an authentication procedure for validating that the device 12 is licensed for use within the unlicensed coverage area 16.”*

Gallagher further discloses, *“That is, the location tracking module 122 of the subscriber device 12 is used to coordinate the identification of a base station signal. In the*

presence of such a signal, the location tracking module 122 coordinates the transmittal of an acknowledgment signal to the base station 18.” Gallagher, para. [0052].

Applicant submits that Gallagher’s binary location tracking characteristic, “whether the device is within an unlicensed coverage area 16,” utterly fails to satisfy the plain meaning of the recited feature “acquiring a coordinate position of said mobile radio terminal.” That is, whether a device is within an unlicensed coverage area fails to disclose or suggest the precise coordinate position of the radio terminal, as recited in the claims.

The Examiner has previously been made aware of this distinction. The Statement of Substance of Interview, of the interview conducted between Examiner Casca and Applicant’s representative Donald J. Lecher on February 26, 2008, and filed concurrently with Applicant’s Amendment of February 28, 2008, states in relevant part: “Applicant’s representative demonstrated that the cited prior art fails to teach or suggest Applicant’s claimed invention of, “acquiring a position of said mobile radio terminal; and sending measured information including said reception status and said position information to said information collecting server,” wherein the position is a coordinate position determined by a positioning system, for example, a global positioning system (GPS.)”

Further, Applicant then amended the claims to more explicitly and clearly recite this feature in the Amendment of March 24, 2008. That Amendment amended the claims to recite a “coordinate position” instead of merely a “position.”

This feature is important because the mobile radio terminals can easily collect the relevant information in real time and in actual use. Signal strength and signal quality at specific coordinate locations can be precisely tracked for a large sample of mobile radio terminals in a distributed sample area. Previously, it was necessary for measuring teams to

visit measuring spots with reception status measuring vehicles and, at each measuring spot, measure the reception status in the corresponding coverage in association with the positional information measured by the position measuring device on the reception status measuring vehicle. See: Specification, p. 2, lines 11-22; Fig. 1.

Applicant suspects the Examiner's present confusion regarding this feature may arise from Gallagher's use of the word "coordinate" in the active verb sense, as in "to combine in harmonious relation or action." *"In addition, the module 106 contains an authentication module to coordinate an authentication procedure for validating that the device 12 is licensed for use within the unlicensed coverage area 16."* Gallagher, para. [0038], etc. This is clearly distinct from "a coordinate position" as recited in the claims. Instead, it is an additional function of the memory module, and is unrelated to any "coordinate position" as the term is understood by those skilled in the art.

The Examiner further alleges that Gallagher discloses, *"sending measured information including said reception status and [sic] said information collecting server (par. 60 and fig. 1, "subscriber device 12 transmits to the base station 18 information on the signal strengths ... base station 18 forwards this information to the system server 24")."* Office Action, p. 3.

However, Gallagher clearly discloses forwarding to the server only information on the signal strengths of nearby base stations. *"FIG. 7 provides a more detailed characterization of the handover process from unlicensed ireless to licensed wireless service. When the subscriber device 12 is within the service area 16 of the base station 18, the subscriber device 12 transmits to the base station 18 information on the signal strengths of the frequencies of the nearby licensed wireless base stations. The base station 18 forwards this*

information to the system server 24, which in turn sends the information to the visitor location register 32.” Gallagher, para. [0060].

The Desgagne Reference

Claims 1-2, 5, 7-13, 16-17, 20-21, 24, 26-28, 30-32, 35-36, 38-40, 43, 45-50, 53, and 55-73 stand rejected under 35 U.S.C. §103(a) over Gallagher in view of Desgagne and further in view of Sekiyama. Claims 3-4, 6, 14-15, 18-19, 22-23, 25, 29, 33-34, 37, 41-42, 44, 51-52, and 54 stand rejected under 35 U.S.C. §103(a) over Gallagher in view of Desgagne and Sekiyama, and further in view of well known prior art. Applicant respectfully traverses these rejections.

Deficiencies of Gallagher are discussed above. Desgagne fails to overcome the deficiencies of Gallagher.

The Examiner alleges that Desgagne discloses certain features of the claimed invention. Applicant submits, however, that there are features of the claimed invention which are neither disclosed nor suggested by Desgagne.

With regard to claim 1, Gallagher and Desgagne fail to disclose or suggest at least “A method of collecting information used for adjustments with an information collecting server in a radio communication system connected to at least one mobile radio terminal for performing user communications, comprising: in said mobile radio terminal, monitoring a communication status of user communication and detecting as a trigger when a change of said communication status has satisfied a predetermined condition; acquiring a reception status of a radio signal when said trigger is detected; acquiring a coordinate position of said mobile radio terminal; and sending measured information including said reception status and

said coordinate position to said information collecting server; and in said information collecting server, recording said measured information received from said mobile radio terminal,” as recited in the claim.

The Examiner alleges that, “*In the same field of endeavor, Desgagne discloses measuring the signal strength of a mobile station when a call termination occurs (abstract, fig. 1-4, col. 3, lines 29-47 and col. 5, line 53 – col. 6, line 9, “measure the signal strength when the MS is ... terminating access”, “terminating access when a seized DTC is disturbed”).*” Office Action, pp. 3-4.

However, Desgagne discloses only selecting a digital traffic channel that is least likely to be disturbed, as determined by calculating an expected ratio of the carrier signal strength to the interference strength (C/I). Desgagne, Abstract and col. 2, lines 4-36. “*In order to overcome the disadvantage of existing solutions, it would be advantageous to have a method in a digital or dual-mode radio telecommunications network for improving system performance by determining the expected C/I on a seized digital traffic channel prior to utilizing the channel, and, if the expected C/I is poor, reselecting a DTC or an AVC which will provide improved voice quality.*” Desgagne, 57-63. Similar to Gallagher, Desgagne is concerned with maintaining a reception (voice) quality in a manner intended to be seamless and transparent to the user.

Further, Desgagne at col. 5, line 53 – col. 6, line 9, clearly discloses only steps of acquiring a DTC when one is needed, either at call origin, or when a DTC currently seized by the mobile unit is determined to have a C/I ratio which meets the predetermined threshold to be considered “disturbed.” The cited passage fails to disclose or suggest call termination.

Similar to Gallagher, discussed above, Desgagne discloses only detecting a reception

characteristic.

Terminating access of a seized DTC when switching to another DTC is clearly not analogous to a call termination. *“The process ensures that the best DTC is always utilized, and no access (either originating or terminating) is prevented by the process.”* Desgagne, col. 5, lines 56-59.

Further, Desgagne discloses that expected quality is distinguishable from signal strength. *“Total disturbance on a voice channel is, among other things, comprised of interference I, noise, and multipath propagation. Multipath propagation results from the fact that the signal from the BS is able to reach the MS partly through direct signals and partly through signals reflected from buildings, surrounding hills, and the like. The reflected signals are delayed in relation to the direct signals, and the multipath propagation results in increasing the bit error rate (BER). In D-AMPS, there is a mechanism in the MS and the BS to measure the bit error rate (BER). If the C/I is high, but the BER is also high, the high BER is most likely due to multipath propagation.”* Desgagne, col. 5, lines 21-32.

Thus, although Desgagne teaches measuring carrier signal strength C in order to calculate the C/I ratio, Desgagne fails to teach or suggest measuring signal strength when a call termination occurs, as alleged by the Examiner. Further, Desgagne fails to teach or suggest transmitting such data to an information collecting server.

For at least the above reasons, the cited references fail to disclose or suggest all features of the present invention. Independent claims 12, 20, 31, and 39 recite similar features, and the rejections of claims 2-73 are traversed on substantially similar basis.

Thus, Applicants respectfully request the Examiner reconsider and withdraw the rejections of claims 1-73 over Gallagher, Desgagne, and Sekiyama.

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CONCLUSION


In view of the foregoing, Applicant submits that claims 1-73, all the claims presently pending in the application, are patentably distinct over the prior art of record and are allowable, and that the application is in condition for allowance. Such action would be appreciated.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned attorney at the local telephone number listed below to discuss any other changes deemed necessary for allowance in a telephonic or personal interview.

To the extent necessary, Applicant petitions for an extension of time under 37 CFR §1.136. The Commissioner is authorized to charge any deficiency in fees, including extension of time fees, or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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